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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,145	05/25/2001	Richard Alan Haase		4449

7590 10/05/2011  
Mr Richard Haase  
4402 Ring Rose Drive  
Missouri City, TX 77459

EXAMINER
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BARRY, CHESTER T

ART UNIT	PAPER NUMBER
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1778

MAIL DATE	DELIVERY MODE
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10/05/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/866,145	<b>Applicant(s)</b> HAASE, RICHARD ALAN	
	<b>Examiner</b> CHESTER BARRY	<b>Art Unit</b> 1778	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-13, 15-20 and 39 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-13, 15-20, 39 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input checked="" type="checkbox"/> Other: <u>PTO/SB/96 form blank</u> .             |

Effective Filing date of Applicant's Claims

Each of applicant's claims in this case recite *inter alia* use of ferric chloride, or a composition comprising ferric chloride or aluminum sulfate (claim 16). Insofar as parent application 08/721,557 filed 9/26/1996 does not support, i.e., does not provide an adequate written description of a method involving or formulation comprising either ferric chloride or aluminum sulfate, the effective filing date of applicant's claims in this reissue application correspond to that of the actual filing date of continuation-in-part application 09/055,870, i.e., April 6, 1998.

Terminal Disclaimer Filed 12/17/2010 is Not Approved

The assignee has not established its ownership interest in the patent, in order to support the terminal disclaimer. There is no submission in the record establishing the ownership interest by either (a) providing documentary evidence of a chain of title from the original inventor(s) to the assignee and a statement affirming that the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11, or (b) specifying (by reel and frame number) where such documentary evidence is recorded in the Office (37 CFR 3.73(b)). The following is a statement of 37 CFR 3.73:

**37 CFR 3.73 Establishing right of assignee to take action.**

(a) The inventor is presumed to be the owner of a patent application, and any patent that may issue therefrom, unless there is an assignment. The original applicant is presumed to be the owner of a trademark application or registration unless there is an assignment.

(b)(1) In order to request or take action in a patent or trademark matter, the assignee must establish its ownership of the patent or trademark property of paragraph (a) of this section to the satisfaction of the Director. The establishment of ownership by the assignee may be

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combined with the paper that requests or takes the action. Ownership is established by submitting to the Office a signed statement identifying the assignee, accompanied by either:

(i) Documentary evidence of a chain of title from the original owner to the assignee (*e.g.*, copy of an executed assignment). For trademark matters only, the documents submitted to establish ownership may be required to be recorded pursuant to § 3.11 in the assignment records of the Office as a condition to permitting the assignee to take action in a matter pending before the Office. For patent matters only, the submission of the documentary evidence must be accompanied by a statement affirming that the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant § 3.11; or

(ii) A statement specifying where documentary evidence of a chain of title from the original owner to the assignee is recorded in the assignment records of the Office (*e.g.*, reel and frame number).

(2) The submission establishing ownership must show that the person signing the submission is a person authorized to act on behalf of the assignee by:

(i) Including a statement that the person signing the submission is authorized to act on behalf of the assignee; or

(ii) Being signed by a person having apparent authority to sign on behalf of the assignee, *e.g.*, an officer of the assignee.

(c) For patent matters only:

(1) Establishment of ownership by the assignee must be submitted prior to, or at the same time as, the paper requesting or taking action is submitted.

(2) If the submission under this section is by an assignee of less than the entire right, title and interest, such assignee must indicate the extent (by percentage) of its ownership interest, or the Office may refuse to accept the submission as an establishment of ownership.

Enclosed with this Office action is a sample Statement under 37 CFR 3.73(b)

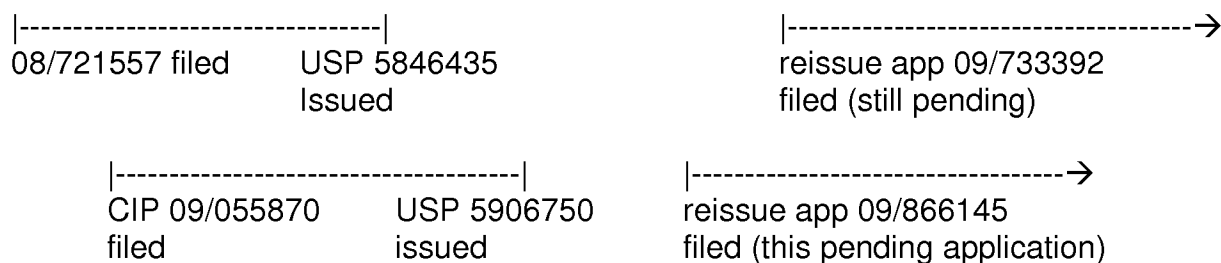
which an assignee may use in order to ensure compliance with the Rule. Part A of the Statement is used when there is a single assignment from the inventor(s). Part B of the Statement is used when there is a chain of title. The “Copies of assignments...” box should be checked when the assignment document(s) (set forth in part A or part B) is/are not recorded in the Office, and a copy of the assignment document(s) is/are attached. When the “Copies of assignments...” box is checked, either the part A box or the part B box, as appropriate, must be checked, and the “Reel\_\_\_\_\_, Frame\_\_\_\_\_” entries should be left blank. If the part B box is checked, and copies of assignments are

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not included, the "From:\_\_\_\_\_ To:\_\_\_\_\_" blank(s) must be filled in. This statement should be used the first time an assignee seeks to take action in an application under 37 CFR 3.73(b).

Provisional Obviousness Type Double Patenting Rejection Over Application 09/733392

[In the chart below, time proceeds to the right (→)]



Pending 09/733392 claim	Pending 09/866145 claim
<p>1. A method for dewatering biological sludge from a thermophilic digestion process, comprising:</p> <p>a. adding a polymeric quaternary ammonium compound, as primary component, to the biological sludge; and</p> <p>b. adding to the biological sludge a cationic polyacrylamide or separate from the polymeric quaternary ammonium compound adding an anionic polyacrylamide;</p> <p>such that the polymeric quaternary ammonium compound and the polyacrylamide enhance dewatering of the sludge.</p>	<p>1. A method for dewatering thermophilic biological sludge, comprising:</p> <p>a. adding a primary component to the thermophilic biological sludge, the primary component comprising one of:</p> <p>aluminum sulfate,</p> <p>ferric chloride,</p> <p>aluminum sulfate and a polymeric quaternary ammonium compound,</p> <p>ferric chloride and a polymeric quaternary ammonium compound, and</p> <p>aluminum sulfate, ferric chloride and a polymeric quaternary ammonium compound; and</p> <p>b. adding a cationic or anionic polyacrylamide to the thermophilic biological sludge.</p>

Claims 1 – 13, 15 – 20, 39 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/733392 in view of USP 6660164 to Stover.

Claim 1 of the 09/733392 application covers a method for dewatering thermophilic biological sludge, comprising: a. adding a polymeric quaternary ammonium compound as primary component to the thermophilic biological sludge, and adding a cationic polyacrylamide to the thermophilic biological sludge. Claim 1 of the 09/733392 application does not require that ferric chloride also be added to the sludge.

USP 6660164 to Stover describes adding ferric chloride 146, 22, 28 (col 8 line 36) to an autothermal aerobic thermophilic digestion process 10 before the thermophilic sludge 138 is dewatered (col 10 line 50) to provide micronutrients, to control odor, and for sulfide complexation and precipitation of sulfide.

It would have been obvious to have added ferric chloride to Haase '435's thermophilic biological sludge prior to dewatering in order to provide a source of micronutrients, to control odor, and/or to complex with and precipitate sulfides, as taught by Stover.

This is a provisional obviousness-type double patenting rejection because the 09733392 application has not yet issued as a reissue patent of USP 5846435.

Claims 1 – 13, 15-20, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5954964<sup>1</sup> to Nielsen in view of USP 6660164<sup>2</sup> to Stover and USP 5861100 to Nagasaki.

Nielsen's claim 8 describes a method for digesting and dewatering sludge in a wastewater treatment process, comprising the steps of:

- a) directing wastewater influent through an activated sludge treatment process and producing waste activated sludge;
- b) directing the waste activated sludge through an autothermal thermophilic aerobic digestion (ATAD) process and producing biosolids; and
- c) mixing a low molecular weight polymer and a high molecular weight polymer with the biosolids and subjecting the mixture of low molecular weight polymer, high molecular weight polymer, and biosolids to a dewatering process for removing water from the biosolids and producing a dewatered treated sludge, wherein at least one of the polymers is a polyacrylamide polymer.

Among the "low molecular weight" polymers disclosed by Nielsen is Percol 406, which USP 5069831 to Schwab states is a poly(diallyldimethylammonium chloride) having a molecular weight of  $1.5 \times 10^6$  and a 50% charge density. Nielsen does not describe adding ferric chloride to the thermophilic biological sludge.

USP 6660164 to Stover describes adding ferric chloride 146, 22, 28 (col 8 line 36) to an autothermal aerobic thermophilic digestion process 10 before the thermophilic sludge 138 is dewatered (col 10 line 50) to provide micronutrients, to control odor, and for sulfide complexation and precipitation of sulfide.

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<sup>1</sup> Nielsen was filed July 29, 1997, which predates applicant's effective filing date of April 6, 1998.

<sup>2</sup> Claiming priority to provisional application 60/071943 filed Jan. 20, 1998, which predates applicant's effective filing date of April 6, 1998.

As shown by USP 5861100 to Nagasaki, ferric chloride and aluminum sulfate (aka, "alum") are known equivalents for use as primary components useful in generating small flocs subsequently flocculated into larger flocs using a polymeric flocculent.

It would have been obvious to have added ferric chloride to Nielsen's thermophilic digester sludge prior to dewatering in order to provide a source of micronutrients, to control odor, and/or to complex with and precipitate sulfides, as taught by Stover.

None of applicant's claims 2, 3, 5, and 6 requires that the primary component recited in claim 1 be a polymeric quaternary ammonium compound. Applicant's claim 7 does not require that the primary component recited in claim 1 be aluminum sulfate.

Per claim 4, Nielsen describes adding the ferric chloride directly to the thermophilic sludge.

Per claim 8, the relative proportion of chemicals in a formulation is a known result-effective variable, so optimization of the ratio thereof would have been obvious.

Per claim 9, the polymer dosage to solids ratio is a known result-effective variable (see Nielsen top column 7, for example), so optimization of the same would have been obvious.

Per claim 16, Nagasaki suggests substitution of alum for ferric chloride as a primary component.

Claims 1 – 13, 15-20, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen in view of Field.



US 5954964 to Nielsen describes dewatering a thermophilic sludge with a low MW polymer and a high MW polymer, but does not describe using an inorganic coagulant like aluminum sulfate or ferric chloride in place of, or in addition to, the low MW polymer.

USP 4043910 to Field facilitates the removal of phosphates from wastewater using both an inorganic coagulant, e.g., ferric chloride, and a cationic polyelectrolyte, e.g., polyacrylamide.

It would have been obvious to have used ferric chloride in combination with Nielsen's low molecular weight polyacrylamide in order to improve removal of phosphorus from Haase's sludge, as suggested by Field.

With respect to the numeric ranges or property values recited in the claims but not specifically addressed in the rejection above, the claimed limitations would have been obvious in view of the recognition in the art that the property, parameter, or limitation is a known result-effective parameter, the optimization of which would have been obvious with no more than routine experimentation.

Response to Arguments Filed 12/17/2010

Applicant argues at page 8 that Stover does not teach dewatering of sludge. The examiner notes that Nielsen, not Stover, is the primary reference in the Sec.103 rejection appearing at page 6 above. Stover, at col 10 line 50 (shown below)

3 (waste sludge). When the thermophilic waste sludge is  
t 50 dewatered, the filtrate is recycled back to the mesophilic  
7 biological treatment process.

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indeed describes dewatering of sludge that has been digested by a thermophilic process at a point earlier in time than the dewatering.

Applicant argues that Nagasaki does not describe dewatering a biological sludge. The examiner replies that Nagasaki is not relied upon to show this feature, but rather to show simply that ferric chloride and aluminum sulfate (aka, "alum") are known equivalents for use as primary components useful in generating small flocs subsequently flocculated into larger flocs using a polymeric flocculent. Accordingly, the skilled artisan would have been motivated to have substituted ferric chloride for aluminum sulfate (aka, "alum"), or to have substituted aluminum sulfate (aka, "alum") for ferric chloride, or to have substituted a combination of ferric chloride and aluminum sulfate (aka, "alum") for either ferric chloride or for aluminum sulfate (aka, "alum") in view of this recognition of functional equivalency in the art, as shown by Nagasaki.

Applicant argues Field does not describe or teach dewatering of sludge. Field is not relied upon for this teaching. The examiner relies upon Nielsen for that teaching. Rather, the examiner relies upon Field merely to show that use of both an inorganic coagulant, e.g., ferric chloride, and a cationic polyelectrolyte, e.g., polyacrylamide, was known in order to remove phosphates from wastewater. The reason why it would have been obvious to have done "x" needn't be the same reason why applicant does (and claims) the same act of "x." In this case, it would have been obvious to have modified Nielsen by using both an inorganic coagulant, e.g., ferric chloride, and a cationic polyelectrolyte, e.g., polyacrylamide, to reduce the phosphate concentration, as suggested by Field, even if phosphorus reduction was never applicant's purpose,

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reason, or motivation for using a combination of an inorganic coagulant, e.g., ferric chloride, and a cationic polyelectrolyte, e.g., polyacrylamide. In examination of claims, **acts** define the metes and bounds of claimed processes, not the reasons why an applicant may have desired to perform (and claim) those acts.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). The claims have not been amended since the final rejection mailed 6/17/2010, and no new evidence has been added to the record since then. Accordingly, final rejection on first action in this RCE is not inappropriate. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

/Chester T. Barry/  
Primary Examiner, Art Unit 1797  
571-272-1152